

Attachment 2
Toxicity Reference Values for Lead

AVIAN TRV STUDY

Test Organisms: Kestrel (Carnivore - Falconiformes)
Exposure Medium: Oral in Diet
Test Endpoint: NOAEL
Reference: Franson et al., 1983. Effects of Chronic Dietary Lead in American Kestrels (*Falco sparverius*). J. Wildl. Dis. 19:110-113. Adult kestrels fed 0, 10 or 50 ppm lead powder for at least 5 months. No effect on body or organ weights; no histopathological lesions. Use ingestion rate of 0.29 kg/kg-d from EPA (1993) for free-living kestrels.
QCE: 14.5 mg/kg-day (50 mg Pb/kg food)*(.29 kg/kg-d)

Adjustment Factors (AF)				Justification for adjustment factor
R	1	2	3	R = 1 is AF for same order and trophic level R = 2 is AF for different order and same trophic level R = 3 is AF for different order and trophic level
I	1	1	1	Three groups of 12 to 14 birds each, half male and half female.
Q1	1	1	1	Mortality, weight gain, organ weights, blood chemistry, residues. Ecologically relevant endpoint.
Q2	1	1	1	Chronic (>150 days)
Q3	1	1	1	NOAEL for weight gain, blood chemistry, lesions, organ weight
U	1	1	1	Kestrels were fed control (0), 10 or 50 ppm Pb in diet for >150 days. Although liver residues significantly elevated above controls, no effects on body or organ weights, packed cell volume (PCV), or histopathological lesions were noted. Study seems adequate.
Total AF	1	2	3	$R * I * Q1 * Q2 * Q3 * U = \text{Total AF}$
QCE (mg/kg-day)	14.5	14.5	14.5	QCE = quantified critical endpoint
TRV	14.5	7.2	4.8	Toxicity Reference Value = QCE/Total AF

R Value	TRV Range (mg/kg-day)	Justification
1	14.5	Test organism is in the same order and trophic level as the functional group members
2	7.2	Test organism is in a different order and same trophic level from the functional group members.
3	4.8	Test organism is in a different order and trophic level from the functional group members.

AVIAN TRV STUDY

Test Organisms: Kestrel (Carnivore - Falconiformes)
Exposure Medium: Oral by Gavage
Test Endpoint: NOAEL
Reference: Hoffman et al., 1985. Survival, Growth, and Accumulation of Ingested Lead in Nestling American Kestrels (*Falco sparverius*). Arch. Environ. Contam. Toxicol. 14:89-94. Nestling kestrels were fed 0, 25, 125, or 625 ppm lead powder for 10 days. No effect on body or organ weights or mortality at 25 mg/kg bw; effects at 125 mg/kg bw.

QCE: 25 mg/kg-day (25 mg Pb/kg bw)

Adjustment Factors (AF)				Justification for adjustment factor
R	1	2	3	R = 1 is AF for same order and trophic level R = 2 is AF for different order and same trophic level R = 3 is AF for different order and trophic level
I	1	1	1	Four groups of 10 one-day old kestrels.
Q ₁	1	1	1	Mortality, weight gain, organ weights, blood chemistry, residues. Ecologically relevant endpoint.
Q ₂	2	2	2	Subacute (10 days) but for critical life stage
Q ₃	1	1	1	NOAEL for weight gain, blood chemistry, lesions, organ weight
U	1	1	1	Nestling kestrels were fed 0, 25, 125, or 625 ppm lead powder for 10 days by gavage. No effect on body or organ weights or mortality at 25 mg/kg bw. Body and brain weights significantly lower than controls for 125 mg/kg bw treatment group. Growth rate depressed by 125 mg/kg bw. Mortality was 40% in the 625 mg/kg bw treatment group; no mortality in lower groups. Critical life stage; adequate sample size.
Total AF	2	4	6	$R * I * Q_1 * Q_2 * Q_3 * U = \text{Total AF}$
QCE (mg/kg-day)	25	25	25	QCE = quantified critical endpoint
TRV	12.5	6.25	4.2	Toxicity Reference Value = QCE/Total AF

R Value	TRV (mg/kg-day)	Justification
1	14.5	Test organism is in the same order and trophic level as the functional group members
2	7.2	Test organism is in a different order and same trophic level from the functional group members.
3	4.8	Test organism is in a different order and trophic level from the functional group members.

Note: this paper states that mallards, pheasants, chickens and quail are less sensitive than kestrels; thus, TRVs based on kestrels should be protective of other taxonomic groups.

MAMMALIAN TRV STUDY

Test Organisms: Rat (Omnivore, Order-Rodentia)
Exposure Medium: Oral in diet as lead acetate
Test Endpoint: NOAEL
Reference: Azar, A., H.J. Trochimowicz, M.E. Maxfield, 1973, "Review of lead studies in animals carried out at Haskell Laboratory: Two-year feeding study and response to hemorrhage study," in: *Environmental Health Aspects of Lead: Proceedings, International Symposium*, D. Barth et al., (ed.), Commission of European Communities, pp. 199-210.
QCE: 40.0 mg/kg-day (500 mg/kg food)*(.028 kg/day)/0.35 kg BW

Adjustment Factors (AF)				Justification for adjustment factor
R	1	2	3	R = 1 is AF for same order and trophic level R = 2 is AF for different order and same trophic level R = 3 is AF for different order and trophic level
I	1	1	1	50 male and 50 female rats per dose level. Reproductive three generation (during critical life stage) study.
Q ₁	1	1	1	Mortality, # of tumors, weight gain, # or pregnancies, # of pups born alive, fertility index, gestation index, viability index or lactation index. Ecologically relevant endpoint.
Q ₂	1	1	1	Chronic
Q ₃	1	1	1	NOAEL
U	1	1	1	Pb as lead acetate was fed for a three-generation six-litter study at multiple dosages (0, 10, 50, 100, 1000, 2000 ppm). At 1000 and 2000 ppm dietary Pb, the average weight of weanling rats was slightly decreased. At 10 ppm stippled cells were increased. A decrease in ALAD activity was seen at 50 ppm (however these are not considered adverse effects). 100 ppm Pb is considered the NOAEL.
Total AF	1	2	3	$R * I * Q_1 * Q_2 * Q_3 * U = \text{Total AF}$
QCE (mg/kg-day)	40.0	40.0	40.0	QCE = quantified critical endpoint
TRV	40.0	20.0	13.3	Toxicity Reference Value = QCE/Total AF

R Value	TRV (mg/kg-day)	Justification
1	40.0	Test organism is in the same order and trophic level as the functional group members
2	20.0	Test organism is in a different order and same trophic level from the functional group members
3	13.3	Test organism is in a different order and trophic level from the functional group members

* Wiseman, J., 1987, "Feeding of Non-ruminant Livestock," Butterworths; Boston, MA.

MAMMALIAN TRV STUDY

Test Organisms: Beagle Dog (Omnivore, Order-Carnivora)
Exposure Medium: Diet as lead acetate
Test Endpoint: NOAEL
Reference: Azar, A., H.J. Trochimowicz, M.E. Maxfield, 1973, "Review of lead studies in animals carried out at Haskell Laboratory: Two-year feeding study and response to hemorrhage study," in: *Environmental Health Aspects of Lead: Proceedings, International Symposium*, D. Barth et al., (ed.), Commission of European Communities, pp. 199-210.
QCE: 13 mg/kg-day (500 mg/kg food)*(0.24kg/day)/9.41 kg BW

Adjustment Factors (AF)				Justification for adjustment factor
R	1	2	3	R = 1 is AF for same order and trophic level R = 2 is AF for different order and same trophic level R = 3 is AF for different order and trophic level
I	2	2	2	Four male and four female beagle dogs were used at each dose level (0, 10, 50, 100 and 500 ppm). Two year study. Average variability.
Q ₁	1	1	1	Food consumption, growth, mortality, blood level and behavior. Ecologically relevant endpoint.
Q ₂	1	1	1	Chronic
Q ₃	1	1	1	NOAEL could exceed this level by an unknown amount.
U	2	2	2	There was no significant effects on appearance, behavior, weight gain, mortality, or neurologic examination of dogs to 500 ppm, the maximal dose. A decrease in ALAD activity was seen at 100 ppm. Further study concluded that while ALAD is essential to the synthesis of hemoglobin, the amount needed is but a small fraction of that normally present and this is not an adverse effect. Lack of reproductive endpoint.
Total AF	4	8	12	$R * I * Q_1 * Q_2 * Q_3 * U = \text{Total AF}$
QCE (mg/kg-day)	>13	>13	>13	QCE = quantified critical endpoint
TRV	3.3	1.6	0.81	Toxicity Reference Value = QCE/Total AF. Cannot be quantified because the NOAEL cannot be identified.

R Value	TRV (mg/kg-day)	Justification
1	3.3	Test organism is in the same order and trophic level as the functional group members
2	1.6	Test organism is in a different order and same trophic level from the functional group members
3	0.81	Test organism is in a different order and trophic level from the functional group members

Notes: Use this value for the coyote

*ingestion rate and BW taken from data table for animals

MAMMALIAN TRV STUDY

Test Organisms: Bovine (Herbivore, Order-Artiodactyla)
Exposure Medium: Diet (in hay and grain)
Test Endpoint: LD50
Reference: Zmudski, J., et al., 1983, "Lead poisoning in cattle: Reassessment of the minimum toxic oral dose," *Bulletin of Environmental Contamination*, 30:435-441.

QCE: 2.7 mg/kg-day Specified

Adjustment Factors (AF)				Justification for adjustment factor
R	1	2	3	R = 1 is AF for same order and trophic level R = 2 is AF for different order and same trophic level R = 3 is AF for different order and trophic level
I	2	2	2	22 Holstein males (9-12 weeks old) weighing approx. 55 kg. were tested
Q ₁	1	1	1	Lethality
Q ₂	2	2	2	Subchronic study
Q ₃	3	3	3	Lethality endpoint, death w/in 20 days if on milk diet
U	3	3	3	Reasonable design. However, species sensitivity in question; in a study with sheep, pregnant ewes given 3 mg/kg daily did not exhibit adverse effects (DeMayo, et. al., 1982).
Total AF	36	72	108	$R * I * Q_1 * Q_2 * Q_3 * U = \text{Total AF}$
QCE (mg/kg-day)	2.7	2.7	2.7	QCE = quantified critical endpoint
TRV	0.075	0.038	0.025	Toxicity Reference Value = QCE/Total AF

R Value	TRV (mg/kg-day)	Justification
1	0.075	Test organism is in the same order and trophic level as the functional group members
2	0.038	Test organism is in a different order and same trophic level from the functional group members
3	0.025	Test organism is in a different order and trophic level from the functional group members

Note: This study is weak since it has few test animals. Use this study only for deer since taxonomically related.

SUPPORTING TOXICOLOGICAL INFORMATION

Test Organisms: Chicken (Omnivore, Order-Galliformes)
Exposure Medium: Diet
Test Endpoint: NOAEL
Reference: Eisler, R., 1988, *Lead Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review*, Fish and Wildlife Service. Bio. Rep. No. 14, April, 1985.
QCE: 26 mg/kg-day 500 mg/kg in diet converted to dose by multiplying by 0.105 kg/day ingestion rate and dividing by 2 kg BW

Adjustment Factors (AF)				Justification for adjustment factor
R	1	2	3	R = 1 is AF for same order and trophic level R = 2 is AF for different order and same trophic level R = 3 is AF for different order and trophic level
I	3	3	3	Secondary source
Q ₁	1	1	1	Endpoint ecologically relevant (growth)
Q ₂	2	2	2	Subchronic study
Q ₃	1	1	1	NOAEL endpoint
U	3	3	3	Limited information. Dietary NOAEL appears consistent for a variety of species.
Total AF	18	36	54	$R * I * Q_1 * Q_2 * Q_3 * U = \text{Total AF}$
QCE (mg/kg-day)	26	26	26	QCE = quantified critical endpoint
TRV	NA	NA	NA	Toxicity Reference Value = QCE/Total AF

R Value	TRV (mg/kg-day)	Justification
1	NA	Test organism is in the same order and trophic level as the functional group members
2	NA	Test organism is in a different order and same trophic level from the functional group members
3	NA	Test organism is in a different order and trophic level from the functional group members

Note: Do not use this paper for the TRV since it has high AF due to the primary source not being available

Test Organisms: Dog (Omnivore, Order-Carnivora)
Exposure Medium: Diet
Test Endpoint: FEL - Chronic toxic level
Reference: DeMayo, A., et al., 1982, "Toxic effects of lead and lead compounds on human health, aquatic life, wildlife, plants, and livestock," *CRC Crit. Rev. Environ. Control*, 12:257-305.

Rice, D.C., 1985, "Chronic low-lead exposure from birth produces deficits in discrimination reversal in monkeys," *Toxicology and Applied Pharmacology*, 77:201-210.

QCE: 0.32 mg/kg-day Specified

Adjustment Factors (AF)				Justification for adjustment factor
R	1	2	3	R = 1 is AF for same order and trophic level R = 2 is AF for different order and same trophic level R = 3 is AF for different order and trophic level
I	3	3	3	Tertiary source - cites a textbook
Q ₁	1	1	1	Ecologically relevant endpoint (growth, mortality)
Q ₂	1	1	1	Chronic study
Q ₃	3	3	3	FEL
U	2	2	2	Limited information. However, a chronic study in monkeys reported a similar LOAEL (0.1 mg/kg/day) for CNS effects (Rice, 1985).
Total AF	18	36	54	$R * I * Q_1 * Q_2 * Q_3 * U = \text{Total AF}$
QCE (mg/kg-day)	0.32	0.32	0.32	QCE = quantified critical endpoint
TRV	NA	NA	NA	Toxicity Reference Value = QCE/Total AF

R Value	TRV (mg/kg-day)	Justification
1	NA	Test organism is in the same order and trophic level as the functional group members
2	NA	Test organism is in a different order and same trophic level from the functional group members
3	NA	Test organism is in a different order and trophic level from the functional group members

Note: Do not use this to provide the TRV as the original study could not be obtained and the AF is very high.

Test Organisms: Rat (Omnivore, Order-Rodentia)
Exposure Medium: Drinking Water (Pb as lead acetate)
Test Endpoint: NOAEL
Reference: Kimmel, C.A., et al., 1980, "Chronic low-level lead toxicity in the rat. I. Maternal toxicity and perinatal effects," *Toxicol. Appl. Pharmacology*, 56:28-41.

QCE: 0.36 mg/kg-day Specified (5 mg/l in water, rat water intake; 0.025 L/day/0.35 kg BW)

Adjustment Factors (AF)				Justification for adjustment factor
R	1	2	3	R = 1 is AF for same order and trophic level R = 2 is AF for different order and same trophic level R = 3 is AF for different order and trophic level
I	2	2	2	#'s of animals in control and Pb groups ranged from 60 to 148 during the pregnancy period (2 generations), from 24 to 75 pre-pregnancy, and 6 to 13 litters during post pregnancy. However, significant variation between replicates was seen, and only females (parental generation) examined.
Q ₁	1	1	1	Food % water consumption, reproductive success, and concentrations in selected tissue. Ecologically relevant endpoints.
Q ₂	1	1	1	Chronic study
Q ₃	1	1	1	NOAEL (although Pb concentrations in blood were increased in females exposed to 5 ppm, toxicity was not seen at this level)
U	1	1	1	Good design, studied reproductive effects. Weanling female rats were exposed through mating, gestation and lactation (offspring then chronically). Various dose levels (0, 5, 25, 50 ppm) studied and NOAEL established. Other studies support findings. (DeMayo et al., 1982).
M	0.5	0.5	0.5	Lead acetate in drinking water. This is likely to be much more bioavailable than inorganic lead.
Total AF	1	2	3	$R * I * Q_1 * Q_2 * Q_3 * U = \text{Total AF}$
QCE (mg/kg-day)	0.36	0.36	0.36	QCE = quantified critical endpoint
TRV	NA	NA	NA	Toxicity Reference Value = QCE/Total AF

R Value	TRV (mg/kg-day)	Justification
1	NA	Test organism is in the same order and trophic level as the functional group members
2	NA	Test organism is in a different order and same trophic level from the functional group members
3	NA	Test organism is in a different order and trophic level from the functional group members

DeMayo, A., et al., 1982, *Toxic Effects of Lead and Lead Compounds on Human Health, Aquatic Life, Wildlife, Plants, and Livestock*, CRC Crit. Rev. Environ. Control 12:257-305.

Note: Do not use this study to provide a TRV since the drinking water route is not equivalent to the dietary ingestion route.

COPC:**Lead (Trimethyllead)** CAS 7439-92-1**Test Organisms:**

European Starling (Insectivore, Order-Passeriformes)

Exposure Medium:

Capsule

Test Endpoint:

LOAEL

Reference:Osborn, D., W.J. Eney, and K.R. Bull, 1983, "The toxicity of trialkyl lead compounds to birds," *Environ. Pollut.*, 31A:261-275, as cited in Eisler, 1987.**QCE:**

2.8 mg/kg-day (0.2 mg/day)/0.070 kg BW

Adjustment Factors (AF)				Justification for adjustment factor
R	1	2	3	R = 1 is AF for same order and trophic level R = 2 is AF for different order and same trophic level R = 3 is AF for different order and trophic level
I	3	3	3	6 birds/ group, sex not specified
Q ₁	1	1	1	Endpoint ecologically relevant (behavioral effects)
Q ₂	2	2	2	Subchronic study
Q ₃	2	2	2	LOAEL
U	3	3	3	Limited information in study.
Total AF	36	72	108	$R * I * Q_1 * Q_2 * Q_3 * U = \text{Total AF}$
QCE (mg/kg-day)	2.8	2.8	2.8	QCE = quantified critical endpoint
TRV	NA	NA	NA	Toxicity Reference Value = QCE/Total AF

R Value	TRV (mg/kg-day)	Justification
1	NA	Test organism is in the same order and trophic level as the functional group members
2	NA	Test organism is in a different order and same trophic level from the functional group members
	NA	Test organism is in a different order and trophic level from the functional group members

Note: This study has very high AF. The route of exposure is not typical of environmental exposures. Do not use this study for establishing a TRV.

TRVs for Lead (mg/kg-d)

Receptors	Lead
Great Basin spadefoot toad	NA
Mourning dove	4.8
Sage sparrow	4.8
Ferruginous hawk	14.5
Loggerhead shrike	14.5
Burrowing owl	14.5
Black-billed magpie	4.8
Mule deer	0.075
Pygmy rabbit	40
Townsend's western big-eared bat	40
Coyote	3.3
Deer mouse	40
Sagebrush lizard	NA
Grasshoppers, beetles	NA
Vegetation TRVs (mg/kg)	
Plants	334

Attachment 3
Crystal Ball Statistics for Wildlife Receptors

Crystal Ball Report

Simulation started on 5/29/01 at 10:33:27
Simulation stopped on 5/29/01 at 10:39:15

Forecast: Townsends Big-Eared Bat

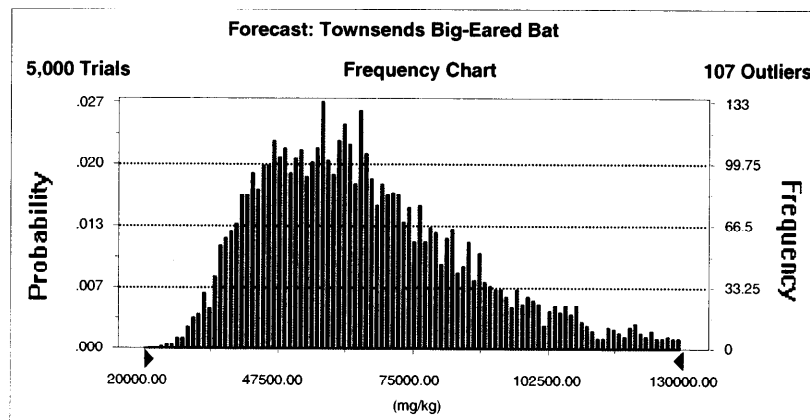
(Pbtable5_28.xls)Bat - Cell: B4

Summary:

Display Range is from 20000.00 to 130000.00 (mg/kg)
Entire Range is from 23924.30 to 208581.69 (mg/kg)
After 5,000 Trials, the Std. Error of the Mean is 334.70

Statistics:

	Value
Trials	5000
Mean	66790.07
Median	62415.14
Mode	---
Standard Deviation	23666.52
Variance	560104058.02
Skewness	1.19
Kurtosis	4.98
Coeff. of Variability	0.35
Range Minimum	23924.30
Range Maximum	208581.69
Range Width	184657.39
Mean Std. Error	334.70



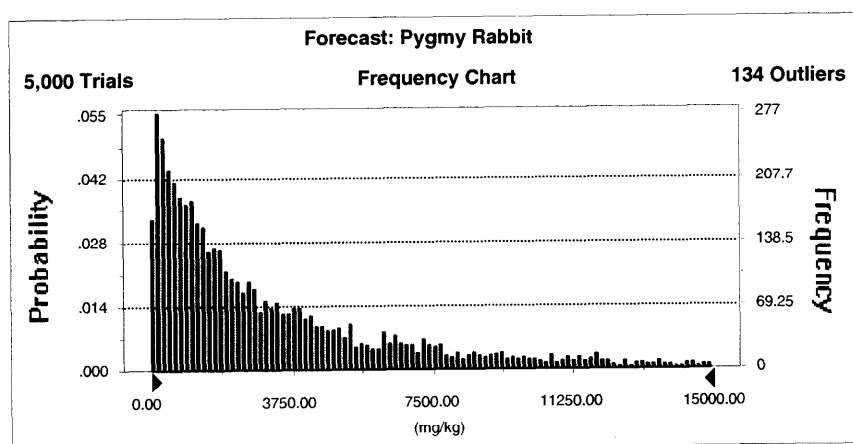
Percentiles:

Percentile	(mg/kg)
0%	23924.30
10%	41118.11
20%	46832.76
30%	52233.89
40%	57343.92
50%	62415.14
60%	67848.47
70%	74670.76
80%	83627.09
90%	98288.43
100%	208581.69

Forecast: Pygmy Rabbit**(Pbtable5_28.xls)Rabbit - Cell: B4****Summary:**

Display Range is from 0.00 to 15000.00 (mg/kg)
Entire Range is from 21.11 to 34573.03 (mg/kg)
After 5,000 Trials, the Std. Error of the Mean is 57.14

Statistics:	Value
Trials	5000
Mean	3625.94
Median	2133.54
Mode	---
Standard Deviation	4040.67
Variance	16326981.66
Skewness	2.01
Kurtosis	7.80
Coeff. of Variability	1.11
Range Minimum	21.11
Range Maximum	34573.03
Range Width	34551.93
Mean Std. Error	57.14

**Percentiles:**

Percentile	(mg/kg)
0%	21.11
10%	334.25
20%	669.11
30%	1069.78
40%	1533.97
50%	2133.54
60%	2990.33
70%	4119.47
80%	5926.95
90%	9102.49
100%	34573.03

Forecast: Black-billed Magpie**(Pbtable5_28.xls)Magpie - Cell: B4****Summary:**

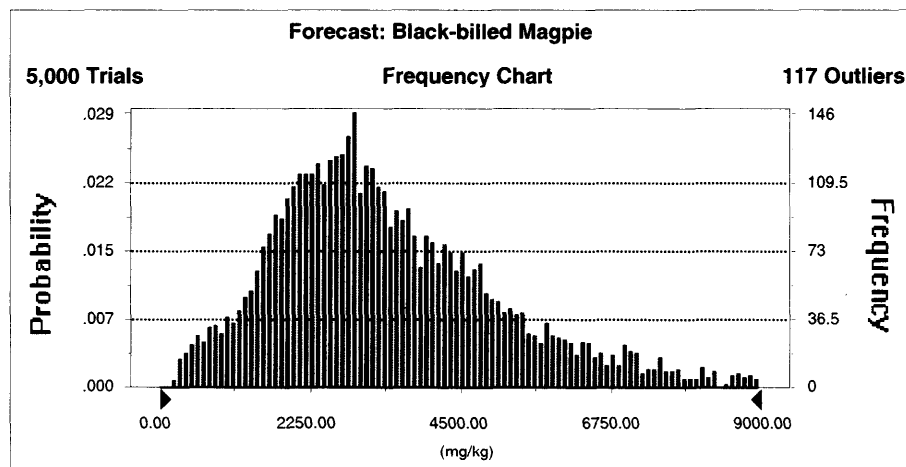
Display Range is from 0.00 to 9000.00 (mg/kg)

Entire Range is from 168.42 to 24307.54 (mg/kg)

After 5,000 Trials, the Std. Error of the Mean is 28.62

Statistics:

	Value
Trials	5000
Mean	3591.00
Median	3172.10
Mode	---
Standard Deviation	2024.07
Variance	4096847.52
Skewness	1.66
Kurtosis	8.69
Coeff. of Variability	0.56
Range Minimum	168.42
Range Maximum	24307.54
Range Width	24139.12
Mean Std. Error	28.62

**Percentiles:**

Percentile	(mg/kg)
0%	168.42
10%	1545.92
20%	2042.24
30%	2441.51
40%	2818.26
50%	3172.10
60%	3617.49
70%	4182.74
80%	4857.85
90%	6098.82
100%	24307.54

Forecast: Mourning Dove

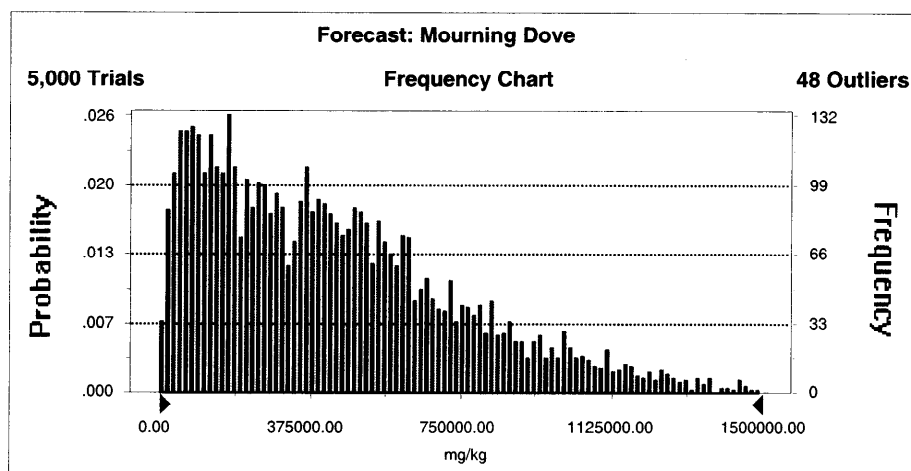
(Pbtable5_28.xls)Dove - Cell: B4

Summary:

Display Range is from 0.00 to 1500000.00 mg/kg
Entire Range is from 5225.68 to 2946778.53 mg/kg
After 5,000 Trials, the Std. Error of the Mean is 4735.83

Statistics:

	Value
Trials	5000
Mean	442624.19
Median	379217.35
Mode	---
Standard Deviation	334873.80
Variance	1.12E+11
Skewness	1.22
Kurtosis	5.37
Coeff. of Variability	0.76
Range Minimum	5225.68
Range Maximum	2946778.53
Range Width	2941552.85
Mean Std. Error	4735.83



Percentiles:

Percentile	mg/kg
0%	5225.68
10%	77878.68
20%	139824.21
30%	213814.79
40%	291357.02
50%	379217.35
60%	469008.55
70%	565564.67
80%	692877.39
90%	898090.47
100%	2946778.53

Forecast: Deer Mouse**(Pbtable5_28.xls)Mouse - Cell: B4****Summary:**

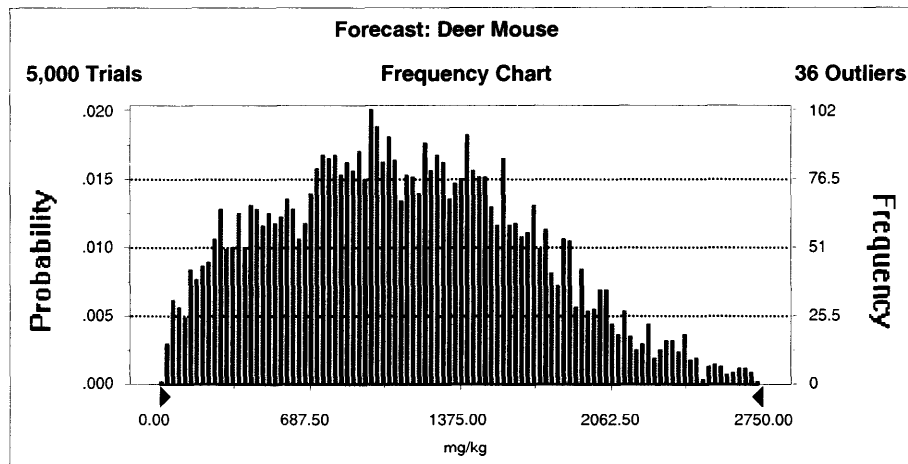
Display Range is from 0.00 to 2750.00 mg/kg

Entire Range is from 22.64 to 3562.24 mg/kg

After 5,000 Trials, the Std. Error of the Mean is 8.43

Statistics:

	Value
Trials	5000
Mean	1139.82
Median	1102.39
Mode	---
Standard Deviation	596.37
Variance	355654.00
Skewness	0.38
Kurtosis	2.79
Coeff. of Variability	0.52
Range Minimum	22.64
Range Maximum	3562.24
Range Width	3539.60
Mean Std. Error	8.43

**Percentiles:**

Percentile	mg/kg
0%	22.64
10%	358.87
20%	583.45
30%	778.84
40%	947.21
50%	1102.39
60%	1277.04
70%	1451.31
80%	1649.74
90%	1924.78
100%	3562.24

Forecast: Sage Sparrow**(Pbtable5_28.xls)Sage - Cell: B4****Summary:**

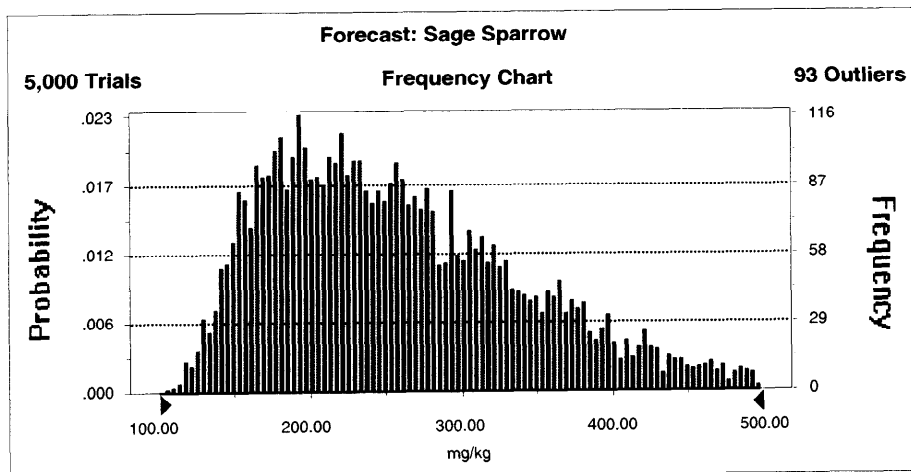
Display Range is from 100.00 to 500.00 mg/kg

Entire Range is from 105.32 to 763.37 mg/kg

After 5,000 Trials, the Std. Error of the Mean is 1.28

Statistics:

	Value
Trials	5000
Mean	262.56
Median	246.79
Mode	---
Standard Deviation	90.36
Variance	8164.62
Skewness	0.98
Kurtosis	4.06
Coeff. of Variability	0.34
Range Minimum	105.32
Range Maximum	763.37
Range Width	658.05
Mean Std. Error	1.28

**Percentiles:**

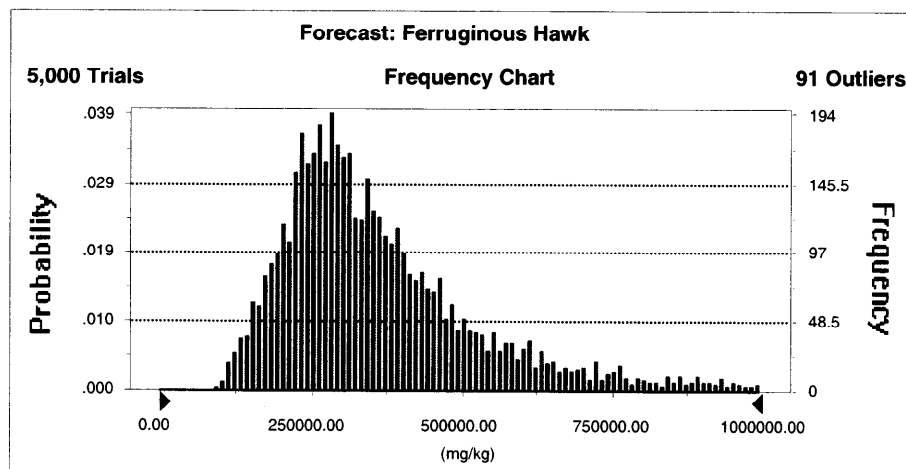
Percentile	mg/kg
0%	105.32
10%	161.54
20%	182.86
30%	203.32
40%	224.07
50%	246.79
60%	269.58
70%	297.73
80%	332.27
90%	383.55
100%	763.37

Forecast: Ferruginous Hawk**(Pbtable5_28.xls)Hawk - Cell: B4****Summary:**

Display Range is from 0.00 to 1000000.00 (mg/kg)
Entire Range is from 97062.34 to 2389994.73 (mg/kg)
After 5,000 Trials, the Std. Error of the Mean is 2884.77

Statistics:

	Value
Trials	5000
Mean	378450.59
Median	325272.19
Mode	---
Standard Deviation	203983.88
Variance	41609425150.60
Skewness	2.44
Kurtosis	12.79
Coeff. of Variability	0.54
Range Minimum	97062.34
Range Maximum	2389994.73
Range Width	2292932.38
Mean Std. Error	2884.77

**Percentiles:**

Percentile	(mg/kg)
0%	97062.34
10%	199214.07
20%	236093.68
30%	266072.43
40%	294038.43
50%	325272.19
60%	363319.27
70%	410717.38
80%	479417.02
90%	612112.37
100%	2389994.73

Forecast: Loggerhead Shrike**(Pbtable5_28.xls)Shrike - Cell: B4****Summary:**

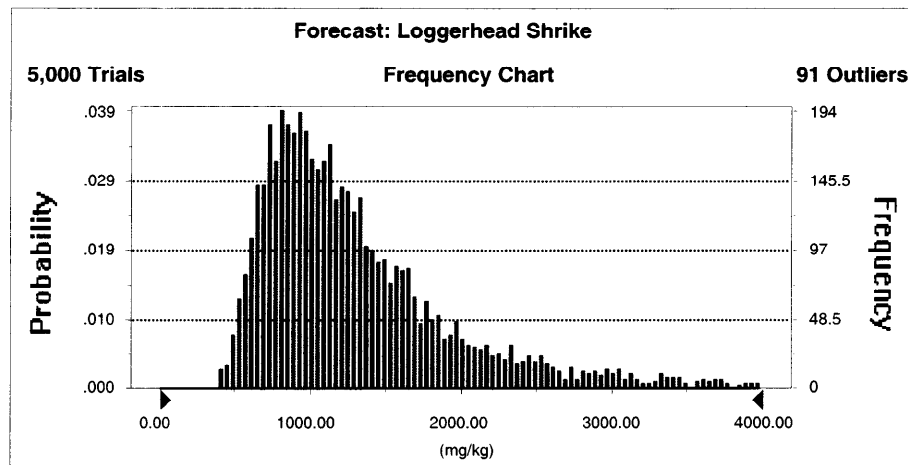
Display Range is from 0.00 to 4000.00 (mg/kg)

Entire Range is from 400.28 to 12721.35 (mg/kg)

After 5,000 Trials, the Std. Error of the Mean is 12.24

Statistics:

	Value
Trials	5000
Mean	1385.88
Median	1154.58
Mode	---
Standard Deviation	865.62
Variance	749304.13
Skewness	3.25
Kurtosis	21.28
Coeff. of Variability	0.62
Range Minimum	400.28
Range Maximum	12721.35
Range Width	12321.06
Mean Std. Error	12.24

**Percentiles:**

Percentile	(mg/kg)
0%	400.28
10%	689.70
20%	812.50
30%	919.13
40%	1030.33
50%	1154.58
60%	1304.01
70%	1488.63
80%	1756.31
90%	2302.05
100%	12721.35

Forecast: Mule Deer

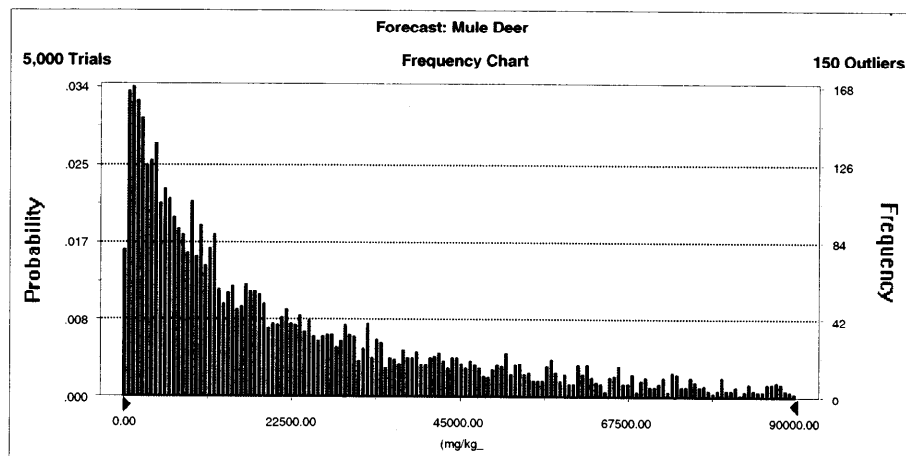
(Pbtable5_28.xls)Deer - Cell: B4

Summary:

Display Range is from 0.00 to 90000.00 (mg/kg_
Entire Range is from 144.21 to 167197.24 (mg/kg_
After 5,000 Trials, the Std. Error of the Mean is 357.02

Statistics:

	Value
Trials	5000
Mean	23881.49
Median	14601.36
Mode	---
Standard Deviation	25244.85
Variance	637302267.78
Skewness	1.69
Kurtosis	5.93
Coeff. of Variability	1.06
Range Minimum	144.21
Range Maximum	167197.24
Range Width	167053.03
Mean Std. Error	357.02



Percentiles:

Percentile	(mg/kg_
0%	144.21
10%	2129.27
20%	4290.21
30%	6943.05
40%	10342.41
50%	14601.36
60%	20538.03
70%	28752.15
80%	40526.95
90%	60059.70
100%	167197.24

Forecast: Burrowing Owl**(Pbtable5_28.xls)Owl - Cell: B4****Summary:**

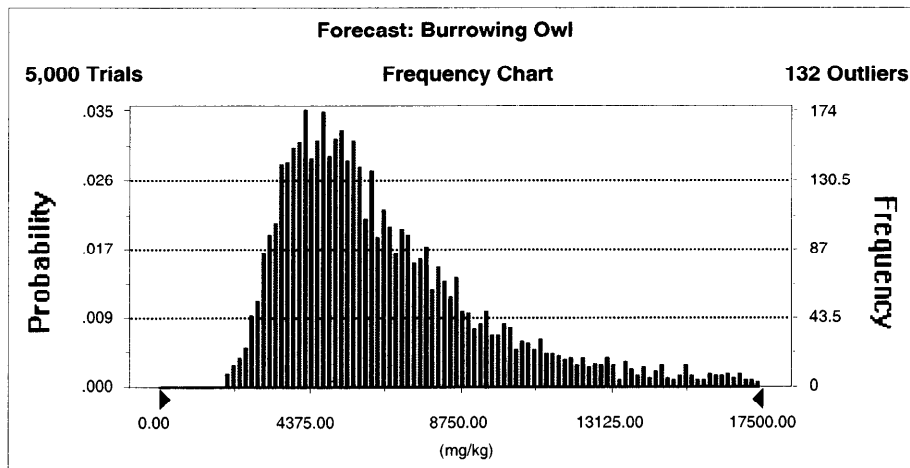
Display Range is from 0.00 to 17500.00 (mg/kg)

Entire Range is from 1899.46 to 59282.94 (mg/kg)

After 5,000 Trials, the Std. Error of the Mean is 55.81

Statistics:

	Value
Trials	5000
Mean	6921.32
Median	5839.25
Mode	---
Standard Deviation	3946.47
Variance	15574662.03
Skewness	2.81
Kurtosis	18.32
Coeff. of Variability	0.57
Range Minimum	1899.46
Range Maximum	59282.94
Range Width	57383.48
Mean Std. Error	55.81

**Percentiles:**

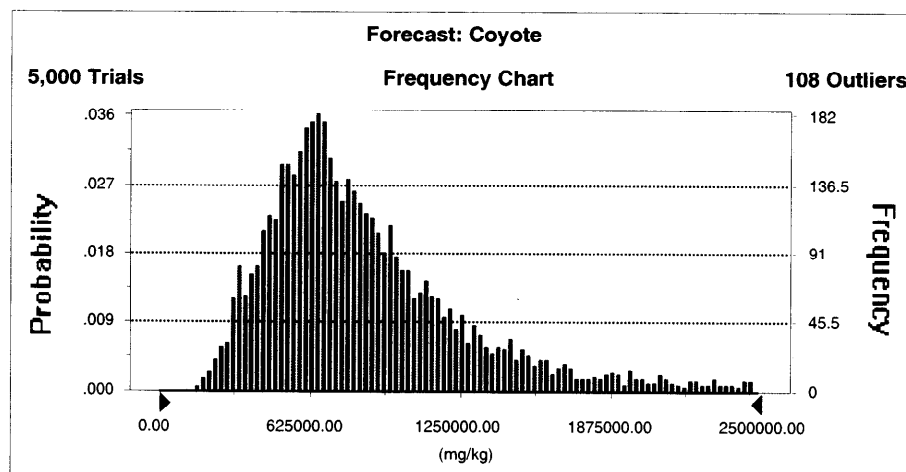
Percentile	(mg/kg)
0%	1899.46
10%	3574.30
20%	4151.84
30%	4712.91
40%	5266.53
50%	5839.25
60%	6598.04
70%	7546.94
80%	8795.92
90%	11307.46
100%	59282.94

Summary:

Display Range is from 0.00 to 2500000.00 (mg/kg)
 Entire Range is from 151813.89 to 8321196.29 (mg/kg)
 After 5,000 Trials, the Std. Error of the Mean is 7685.78

Statistics:

	Value
Trials	5000
Mean	903791.16
Median	769548.72
Mode	---
Standard Deviation	543466.91
Variance	2.95E+11
Skewness	2.83
Kurtosis	18.69
Coeff. of Variability	0.60
Range Minimum	151813.89
Range Maximum	8321196.29
Range Width	8169382.39
Mean Std. Error	7685.78



Percentiles:

Percentile	(mg/kg)
0%	151813.89
10%	433706.19
20%	533002.83
30%	612051.81
40%	685753.81
50%	769548.72
60%	865172.75
70%	984730.07
80%	1161931.37
90%	1498661.79
100%	8321196.29

Assumptions

Assumption: TRV (mg/kg-d)

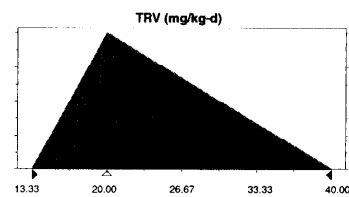
(Pbtable5_28.xls)Bat - Cell: C4

Triangular distribution with parameters:

Minimum	13.33
Likeliest	20.00
Maximum	40.00

Selected range is from 13.33 to 40.00

Mean value in simulation was 24.51



Assumption: Bat BW (kg)

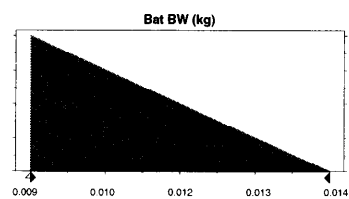
(Pbtable5_28.xls)Bat - Cell: D4

Triangular distribution with parameters:

Minimum	0.009
Likeliest	0.009
Maximum	0.014

Selected range is from 0.009 to 0.014

Mean value in simulation was 0.011



Assumption: Invertebrate BAF

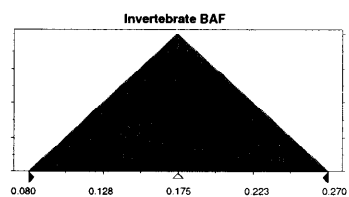
(Pbtable5_28.xls)Bat - Cell: F4

Triangular distribution with parameters:

Minimum	0.080
Likeliest	0.175
Maximum	0.270

Selected range is from 0.080 to 0.270

Mean value in simulation was 0.175



Assumption: AUF

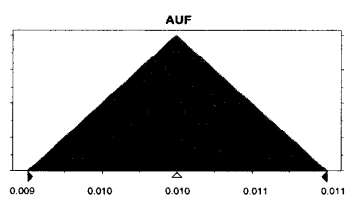
(Pbtable5_28.xls)Bat - Cell: J4

Triangular distribution with parameters:

Minimum	0.009
Likeliest	0.010
Maximum	0.011

Selected range is from 0.009 to 0.011

Mean value in simulation was 0.010



Assumption: Rabbit TRV (mg/kg-d)

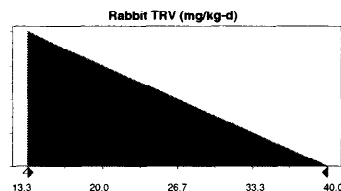
Triangular distribution with parameters:

Minimum	13.3
Likeliest	13.3
Maximum	40.0

Selected range is from 13.3 to 40.0

Mean value in simulation was 22.2

(Pbtable5_28.xls)Rabbit - Cell: C4



Assumption: Rabbit BW (kg)

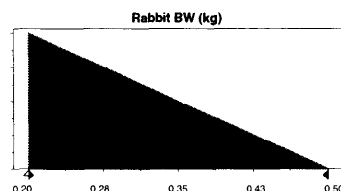
Triangular distribution with parameters:

Minimum	0.20
Likeliest	0.20
Maximum	0.50

Selected range is from 0.20 to 0.50

Mean value in simulation was 0.30

(Pbtable5_28.xls)Rabbit - Cell: D4



Assumption: AUF

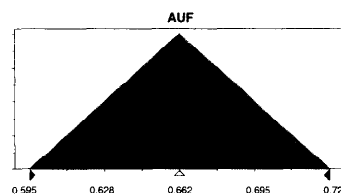
Triangular distribution with parameters:

Minimum	0.595
Likeliest	0.662
Maximum	0.728

Selected range is from 0.595 to 0.728

Mean value in simulation was 0.662

(Pbtable5_28.xls)Rabbit - Cell: J4



Assumption: PUF

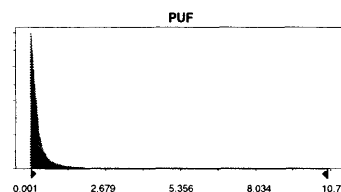
Lognormal distribution with parameters:

Mean	0.343
Standard Dev.	1.078

Selected range is from 0.000 to 10.601

Mean value in simulation was 0.299

(Pbtable5_28.xls)Rabbit - Cell: H4



Assumption: PV

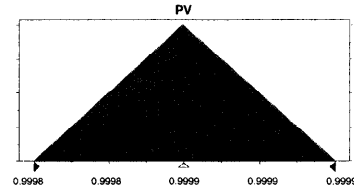
Triangular distribution with parameters:

Minimum	0.9998
Likeliest	0.9999
Maximum	0.9999

Selected range is from 0.9998 to 0.9999

Mean value in simulation was 0.9998

(Pbtable5_28.xls)Rabbit - Cell: G4



Assumption: PS

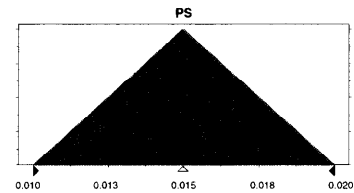
Triangular distribution with parameters:

Minimum	0.010
Likeliest	0.015
Maximum	0.020

Selected range is from 0.010 to 0.020

Mean value in simulation was 0.015

(Pbtable5_28.xls)Rabbit - Cell: I4



Assumption: Magpie TRV (mg/kg-d)

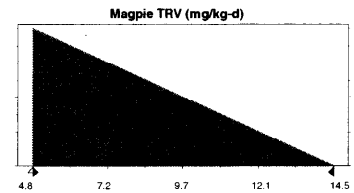
Triangular distribution with parameters:

Minimum	4.8
Likeliest	4.8
Maximum	14.5

Selected range is from 4.8 to 14.5

Mean value in simulation was 8.0

(Pbtable5_28.xls)Magpie - Cell: C4



Assumption: Magpie BW (kg)

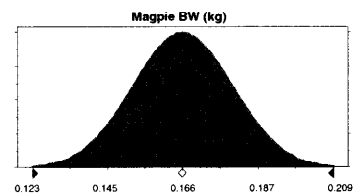
Normal distribution with parameters:

Mean	0.166
Standard Dev.	0.014

Selected range is from -Infinity to +Infinity

Mean value in simulation was 0.166

(Pbtable5_28.xls)Magpie - Cell: D4

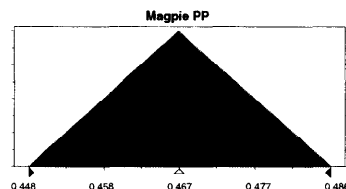


Assumption: Magpie PP

Triangular distribution with parameters:

Minimum	0.448
Likeliest	0.467
Maximum	0.486

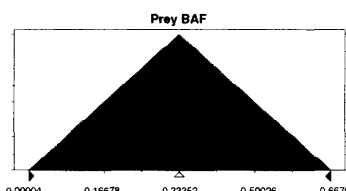
Selected range is from 0.448 to 0.486
Mean value in simulation was 0.467

(Pbtable5_28.xls)Magpie - Cell: E4**Assumption: Prey BAF**

Triangular distribution with parameters:

Minimum	0.00004
Likeliest	0.33400
Maximum	0.66700

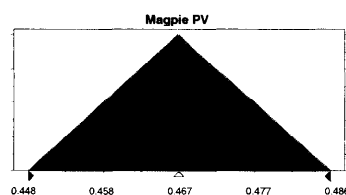
Selected range is from 0.00004 to 0.66700
Mean value in simulation was 0.33368

(Pbtable5_28.xls)Magpie - Cell: F4**Assumption: Magpie PV**

Triangular distribution with parameters:

Minimum	0.448
Likeliest	0.467
Maximum	0.486

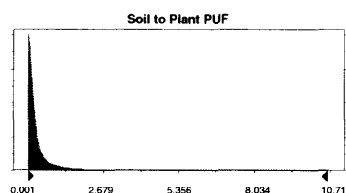
Selected range is from 0.448 to 0.486
Mean value in simulation was 0.467

(Pbtable5_28.xls)Magpie - Cell: G4**Assumption: Soil to Plant PUF**

Lognormal distribution with parameters:

Mean	0.343
Standard Dev.	1.078

Selected range is from 0.000 to 10.601
Mean value in simulation was 0.308

(Pbtable5_28.xls)Magpie - Cell: H4

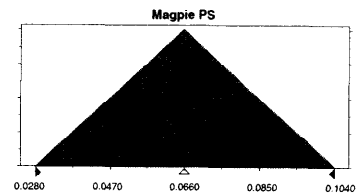
Assumption: Magpie PS

Triangular distribution with parameters:

Minimum	0.0280
Likeliest	0.0660
Maximum	0.1040

Selected range is from 0.0280 to 0.1040
Mean value in simulation was 0.0655

(Pbtable5_28.xls)Magpie - Cell: I4

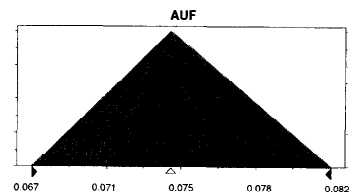
**Assumption: AUF**

Triangular distribution with parameters:

Minimum	0.067
Likeliest	0.074
Maximum	0.082

Selected range is from 0.067 to 0.082
Mean value in simulation was 0.074

(Pbtable5_28.xls)Magpie - Cell: J4

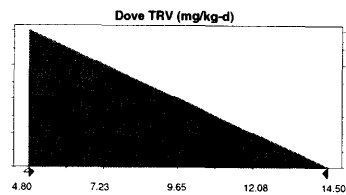
**Assumption: Dove TRV (mg/kg-d)**

Triangular distribution with parameters:

Minimum	4.80
Likeliest	4.80
Maximum	14.50

Selected range is from 4.80 to 14.50
Mean value in simulation was 8.08

(Pbtable5_28.xls)Dove - Cell: C4

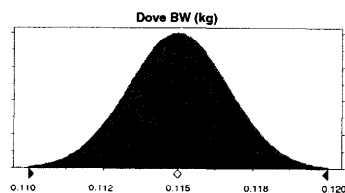
**Assumption: Dove BW (kg)**

Normal distribution with parameters:

Mean	0.115
Standard Dev.	0.002

Selected range is from -Infinity to +Infinity
Mean value in simulation was 0.115

(Pbtable5_28.xls)Dove - Cell: D4



Assumption: Dove PV

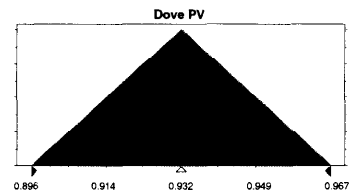
Triangular distribution with parameters:

Minimum	0.896
Likeliest	0.932
Maximum	0.967

Selected range is from 0.896 to 0.967

Mean value in simulation was 0.931

(Pbtable5_28.xls)Dove - Cell: G4

**Assumption: Dove PUF**

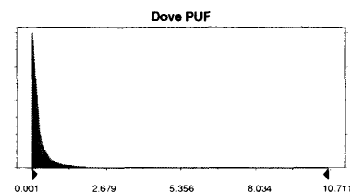
Lognormal distribution with parameters:

Mean	0.343
Standard Dev.	1.078

Selected range is from 0.000 to 10.601

Mean value in simulation was 0.326

(Pbtable5_28.xls)Dove - Cell: H4

**Assumption: Dove PS**

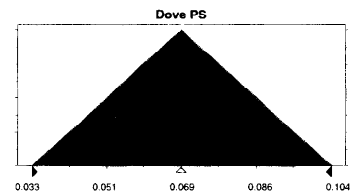
Triangular distribution with parameters:

Minimum	0.033
Likeliest	0.069
Maximum	0.104

Selected range is from 0.010 to 0.104

Mean value in simulation was 0.069

(Pbtable5_28.xls)Dove - Cell: I4

**Assumption: AUF**

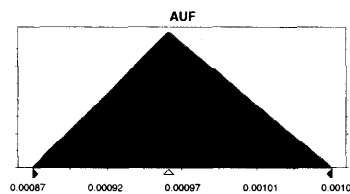
Triangular distribution with parameters:

Minimum	0.00087
Likeliest	0.00096
Maximum	0.00106

Selected range is from 0.00087 to 0.00106

Mean value in simulation was 0.00096

(Pbtable5_28.xls)Dove - Cell: J4

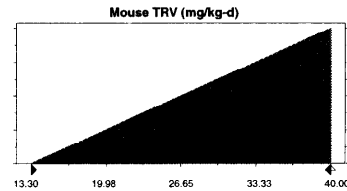


Assumption: Mouse TRV (mg/kg-d)

(Pbtable5_28.xls)Mouse - Cell: C4

Triangular distribution with parameters:
Minimum 13.30
Likeliest 40.00
Maximum 40.00

Selected range is from 13.30 to 40.00
Mean value in simulation was 31.08

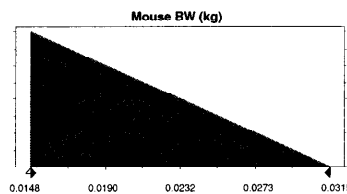


Assumption: Mouse BW (kg)

(Pbtable5_28.xls)Mouse - Cell: D4

Triangular distribution with parameters:
Minimum 0.0148
Likeliest 0.0148
Maximum 0.0315

Selected range is from 0.0148 to 0.0315
Mean value in simulation was 0.0205

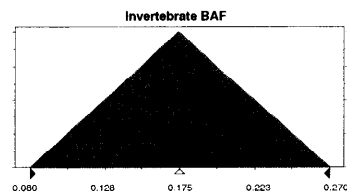


Assumption: Invertebrate BAF

(Pbtable5_28.xls)Mouse - Cell: F4

Triangular distribution with parameters:
Minimum 0.080
Likeliest 0.175
Maximum 0.270

Selected range is from 0.080 to 0.270
Mean value in simulation was 0.176

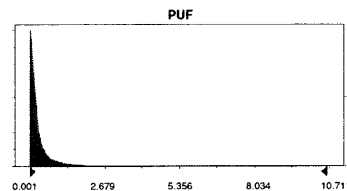


Assumption: PUF

(Pbtable5_28.xls)Mouse - Cell: H4

Lognormal distribution with parameters:
Mean 0.343
Standard Dev. 1.078

Selected range is from 0.000 to 10.601
Mean value in simulation was 0.331



Assumption: PP

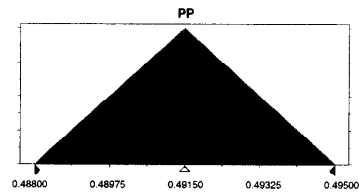
Triangular distribution with parameters:

Minimum	0.48800
Likeliest	0.49150
Maximum	0.49500

Selected range is from 0.48800 to 0.49500

Mean value in simulation was 0.49148

(Pbtable5_28.xls)Mouse - Cell: E4

**Assumption: PV**

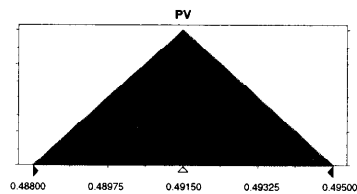
Triangular distribution with parameters:

Minimum	0.48800
Likeliest	0.49150
Maximum	0.49500

Selected range is from 0.48800 to 0.49500

Mean value in simulation was 0.49153

(Pbtable5_28.xls)Mouse - Cell: G4

**Assumption: PS**

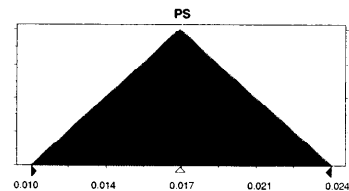
Triangular distribution with parameters:

Minimum	0.010
Likeliest	0.017
Maximum	0.024

Selected range is from 0.010 to 0.024

Mean value in simulation was 0.017

(Pbtable5_28.xls)Mouse - Cell: I4

**Assumption: Sparrow BW (kg)**

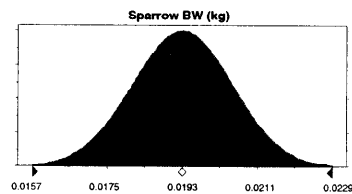
Normal distribution with parameters:

Mean	0.0193
Standard Dev.	0.0012

Selected range is from -Infinity to +Infinity

Mean value in simulation was 0.0193

(Pbtable5_28.xls)Sage - Cell: D4



Assumption: Sparrow PP

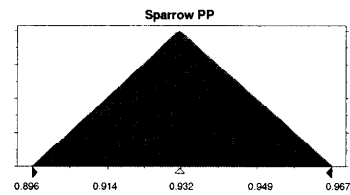
Triangular distribution with parameters:

Minimum	0.896
Likeliest	0.931
Maximum	0.967

Selected range is from 0.896 to 0.967

Mean value in simulation was 0.932

(Pbtable5_28.xls)Sage - Cell: E4



Assumption: Invert BAF

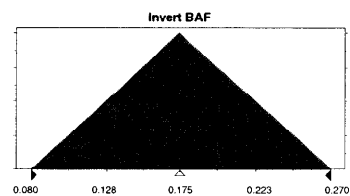
Triangular distribution with parameters:

Minimum	0.080
Likeliest	0.175
Maximum	0.270

Selected range is from 0.080 to 0.270

Mean value in simulation was 0.174

(Pbtable5_28.xls)Sage - Cell: F4



Assumption: Sparrow PS

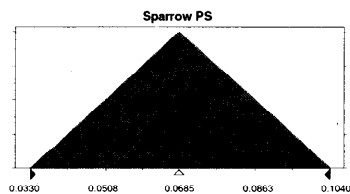
Triangular distribution with parameters:

Minimum	0.0330
Likeliest	0.0685
Maximum	0.1040

Selected range is from 0.0330 to 0.1040

Mean value in simulation was 0.0686

(Pbtable5_28.xls)Sage - Cell: I4



Assumption: AUF

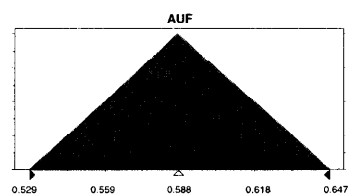
Triangular distribution with parameters:

Minimum	0.529
Likeliest	0.588
Maximum	0.647

Selected range is from 0.529 to 0.647

Mean value in simulation was 0.588

(Pbtable5_28.xls)Sage - Cell: J4



Assumption: TRV (mg/kg-d)

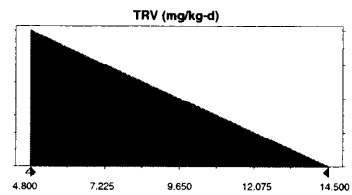
Triangular distribution with parameters:

Minimum	4.800
Likeliest	4.800
Maximum	14.500

Selected range is from 4.800 to 14.500

Mean value in simulation was 7.977

(Pbtable5_28.xls)Sage - Cell: C4



Assumption: Hawk BW (kg)

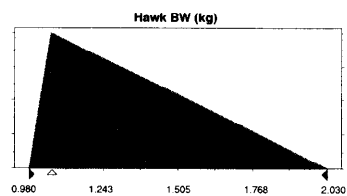
Triangular distribution with parameters:

Minimum	0.980
Likeliest	1.059
Maximum	2.030

Selected range is from 0.980 to 2.030

Mean value in simulation was 1.354

(Pbtable5_28.xls)Hawk - Cell: D4



Assumption: Hawk PP

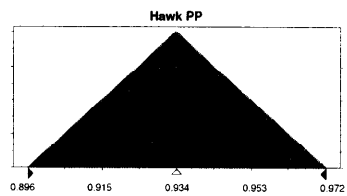
Triangular distribution with parameters:

Minimum	0.896
Likeliest	0.934
Maximum	0.972

Selected range is from 0.896 to 0.972

Mean value in simulation was 0.934

(Pbtable5_28.xls)Hawk - Cell: E4



Assumption: Prey BAF

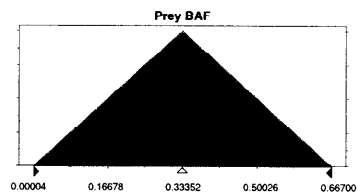
Triangular distribution with parameters:

Minimum	0.00004
Likeliest	0.33352
Maximum	0.66700

Selected range is from 0.00004 to 0.66700

Mean value in simulation was 0.33334

(Pbtable5_28.xls)Hawk - Cell: F4



Assumption: Hawk PS

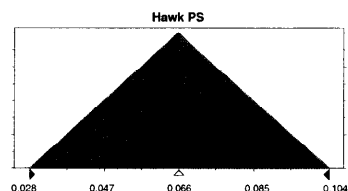
Triangular distribution with parameters:

Minimum	0.028
Likeliest	0.066
Maximum	0.104

Selected range is from 0.028 to 0.104

Mean value in simulation was 0.066

(Pbtable5_28.xls)Hawk - Cell: I4



Assumption: AUF

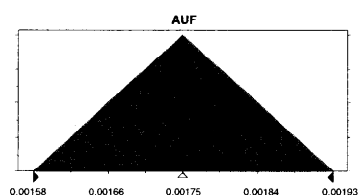
Triangular distribution with parameters:

Minimum	0.00158
Likeliest	0.00175
Maximum	0.00193

Selected range is from 0.00158 to 0.00193

Mean value in simulation was 0.00175

(Pbtable5_28.xls)Hawk - Cell: J4



Assumption: TRV (mg/kg-d)

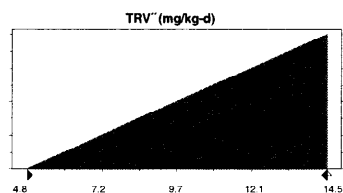
Triangular distribution with parameters:

Minimum	4.8
Likeliest	14.5
Maximum	14.5

Selected range is from 4.8 to 14.5

Mean value in simulation was 11.3

(Pbtable5_28.xls)Hawk - Cell: C4



Assumption: Shrike BW (kg)

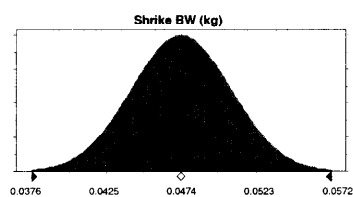
Normal distribution with parameters:

Mean	0.0474
Standard Dev.	0.0033

Selected range is from -Infinity to +Infinity

Mean value in simulation was 0.0474

(Pbtable5_28.xls)Shrike - Cell: D4



Assumption: Shrike PP

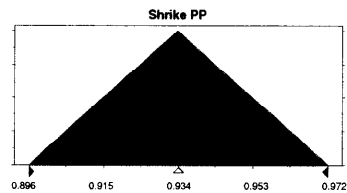
Triangular distribution with parameters:

Minimum	0.896
Likeliest	0.934
Maximum	0.972

Selected range is from 0.896 to 0.972

Mean value in simulation was 0.934

(Pbtable5_28.xls)Shrike - Cell: E4

**Assumption: Prey BAF**

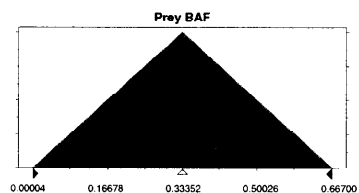
Triangular distribution with parameters:

Minimum	0.00004
Likeliest	0.33352
Maximum	0.66700

Selected range is from 0.00004 to 0.66700

Mean value in simulation was 0.33405

(Pbtable5_28.xls)Shrike - Cell: F4

**Assumption: Shrike PS**

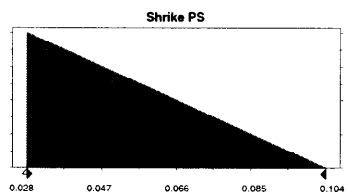
Triangular distribution with parameters:

Minimum	0.028
Likeliest	0.028
Maximum	0.104

Selected range is from 0.028 to 0.104

Mean value in simulation was 0.053

(Pbtable5_28.xls)Shrike - Cell: I4

**Assumption: AUF**

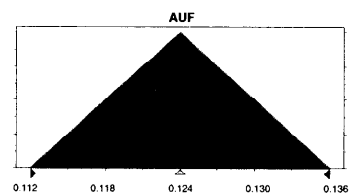
Triangular distribution with parameters:

Minimum	0.112
Likeliest	0.124
Maximum	0.136

Selected range is from 0.112 to 0.136

Mean value in simulation was 0.124

(Pbtable5_28.xls)Shrike - Cell: J4



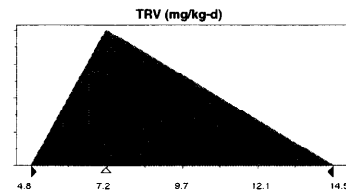
Assumption: TRV (mg/kg-d)

Triangular distribution with parameters:

Minimum	4.8
Likeliest	7.2
Maximum	14.5

Selected range is from 4.8 to 14.5
Mean value in simulation was 8.8

(Pbtable5_28.xls)Shrike - Cell: C4



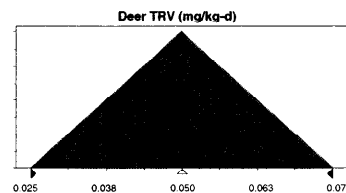
Assumption: Deer TRV (mg/kg-d)

Triangular distribution with parameters:

Minimum	0.025
Likeliest	0.050
Maximum	0.075

Selected range is from 0.025 to 0.075
Mean value in simulation was 0.050

(Pbtable5_28.xls)Deer - Cell: C4



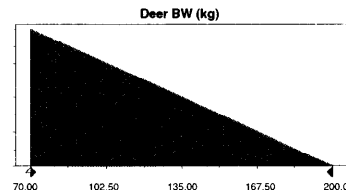
Assumption: Deer BW (kg)

Triangular distribution with parameters:

Minimum	70.00
Likeliest	70.00
Maximum	200.00

Selected range is from 70.00 to 200.00
Mean value in simulation was 113.73

(Pbtable5_28.xls)Deer - Cell: D4



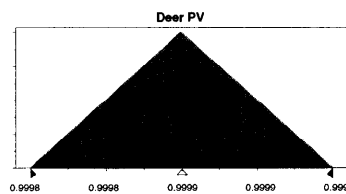
Assumption: Deer PV

Triangular distribution with parameters:

Minimum	0.9998
Likeliest	0.9999
Maximum	0.9999

Selected range is from 0.9998 to 0.9999
Mean value in simulation was 0.9999

(Pbtable5_28.xls)Deer - Cell: G4



Assumption: Deer PS

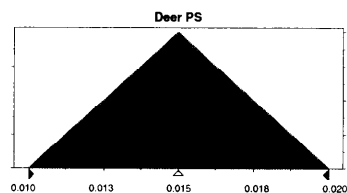
Triangular distribution with parameters:

Minimum	0.010
Likeliest	0.015
Maximum	0.020

Selected range is from 0.010 to 0.020

Mean value in simulation was 0.015

(Pbtable5_28.xls)Deer - Cell: I4

**Assumption: Soil to Plant PUF**

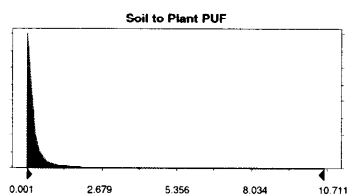
Lognormal distribution with parameters:

Mean	0.343
Standard Dev.	1.078

Selected range is from 0.000 to 10.601

Mean value in simulation was 0.328

(Pbtable5_28.xls)Deer - Cell: H4

**Assumption: AUF**

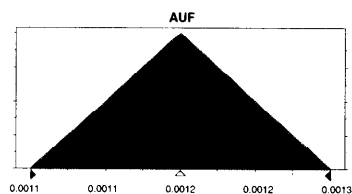
Triangular distribution with parameters:

Minimum	0.0011
Likeliest	0.0012
Maximum	0.0013

Selected range is from 0.0011 to 0.0013

Mean value in simulation was 0.0012

(Pbtable5_28.xls)Deer - Cell: J4

**Assumption: Owl BW (kg)**

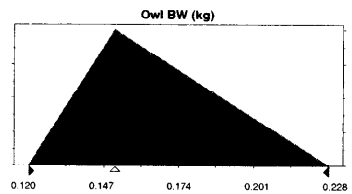
Triangular distribution with parameters:

Minimum	0.120
Likeliest	0.151
Maximum	0.228

Selected range is from 0.120 to 0.228

Mean value in simulation was 0.166

(Pbtable5_28.xls)Owl - Cell: D4



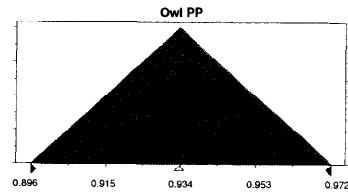
Assumption: Owl PP**(Pbtable5_28.xls)Owl - Cell: E4**

Triangular distribution with parameters:

Minimum	0.896
Likeliest	0.934
Maximum	0.972

Selected range is from 0.896 to 0.972

Mean value in simulation was 0.934

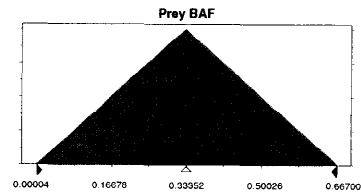
**Assumption: Prey BAF****(Pbtable5_28.xls)Owl - Cell: F4**

Triangular distribution with parameters:

Minimum	0.00004
Likeliest	0.33279
Maximum	0.66700

Selected range is from 0.00004 to 0.66700

Mean value in simulation was 0.33129

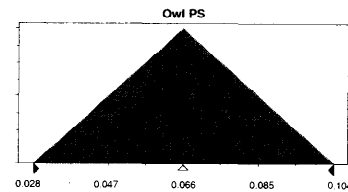
**Assumption: Owl PS****(Pbtable5_28.xls)Owl - Cell: I4**

Triangular distribution with parameters:

Minimum	0.028
Likeliest	0.066
Maximum	0.104

Selected range is from 0.028 to 0.104

Mean value in simulation was 0.066

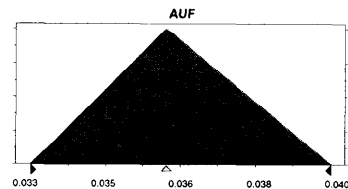
**Assumption: AUF****(Pbtable5_28.xls)Owl - Cell: J4**

Triangular distribution with parameters:

Minimum	0.033
Likeliest	0.036
Maximum	0.040

Selected range is from 0.033 to 0.040

Mean value in simulation was 0.036



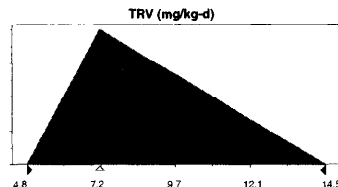
Assumption: TRV (mg/kg-d)

(Pbtable5_28.xls)Owl - Cell: C4

Triangular distribution with parameters:

Minimum	4.8
Likeliest	7.2
Maximum	14.5

Selected range is from 4.8 to 14.5
Mean value in simulation was 8.8



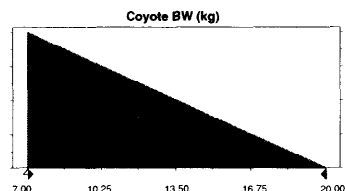
Assumption: Coyote BW (kg)

(Pbtable5_28.xls)Coyote - Cell: D4

Triangular distribution with parameters:

Minimum	7.00
Likeliest	7.00
Maximum	20.00

Selected range is from 7.00 to 20.00
Mean value in simulation was 11.31



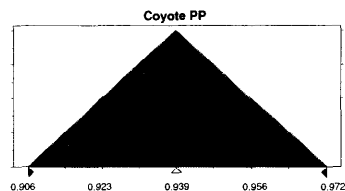
Assumption: Coyote PP

(Pbtable5_28.xls)Coyote - Cell: E4

Triangular distribution with parameters:

Minimum	0.906
Likeliest	0.939
Maximum	0.972

Selected range is from 0.906 to 0.972
Mean value in simulation was 0.939



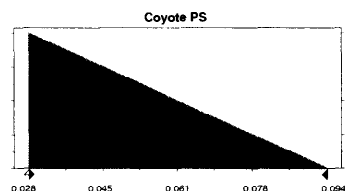
Assumption: Coyote PS

(Pbtable5_28.xls)Coyote - Cell: I4

Triangular distribution with parameters:

Minimum	0.028
Likeliest	0.028
Maximum	0.094

Selected range is from 0.028 to 0.094
Mean value in simulation was 0.050

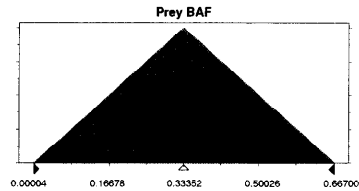


Assumption: Prey BAF

Triangular distribution with parameters:

Minimum	0.00004
Likeliest	0.33352
Maximum	0.66700

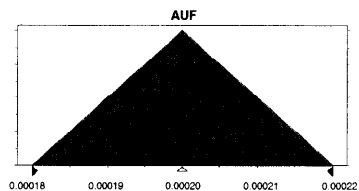
Selected range is from 0.00004 to 0.66700
Mean value in simulation was 0.33171

(Pbtable5_28.xls)Coyote - Cell: F4**Assumption: AUF**

Triangular distribution with parameters:

Minimum	0.00018
Likeliest	0.00020
Maximum	0.00022

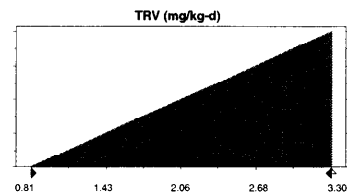
Selected range is from 0.00018 to 0.00022
Mean value in simulation was 0.00020

(Pbtable5_28.xls)Coyote - Cell: J4**Assumption: TRV (mg/kg-d)**

Triangular distribution with parameters:

Minimum	0.81
Likeliest	3.30
Maximum	3.30

Selected range is from 0.81 to 3.30
Mean value in simulation was 2.47

(Pbtable5_28.xls)Coyote - Cell: C4

Attachment 4
Crystal Ball Statistics for Plants

Crystal Ball Report

Simulation started on 1/8/01 at 9:36:20

Simulation stopped on 1/8/01 at 9:38:47

Forecast: PRG25 Little Bluestem

(PlantTRVMC.xls)LBS - Cell: K3

Summary:

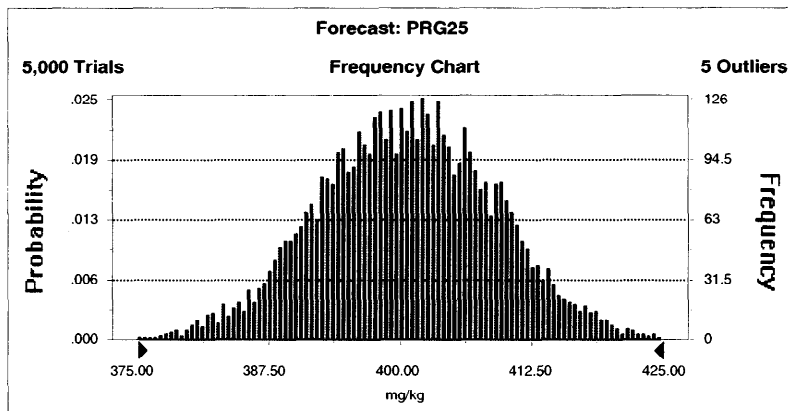
Display Range is from 375.00 to 425.00 mg/kg

Entire Range is from 374.30 to 426.17 mg/kg

After 5,000 Trials, the Std. Error of the Mean is 0.12

Statistics:

	Value
Trials	5000
Mean	400.73
Median	400.78
Mode	---
Standard Deviation	8.35
Variance	69.68
Skewness	-0.03
Kurtosis	2.80
Coeff. of Variability	0.02
Range Minimum	374.30
Range Maximum	426.17
Range Width	51.87
Mean Std. Error	0.12



Percentiles:

Percentile	mg/kg
0%	374.30
10%	389.89
20%	393.58
30%	396.24
40%	398.53
50%	400.78
60%	402.89
70%	405.30
80%	407.95
90%	411.36
100%	426.17

Forecast: NOEC All plants**(PlantTRVMC.xls)DATA - Cell: G6****Summary:**

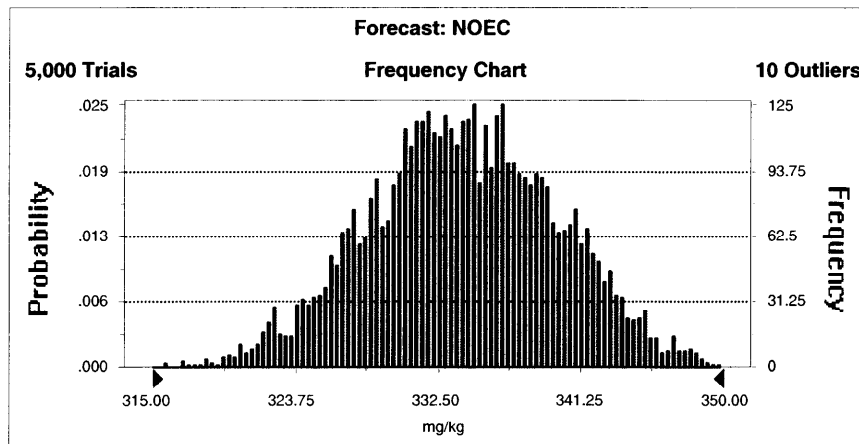
Display Range is from 315.00 to 350.00 mg/kg

Entire Range is from 315.76 to 353.04 mg/kg

After 5,000 Trials, the Std. Error of the Mean is 0.08

Statistics:

	<u>Value</u>
Trials	5000
Mean	334.14
Median	334.11
Mode	---
Standard Deviation	5.81
Variance	33.71
Skewness	-0.01
Kurtosis	2.75
Coeff. of Variability	0.02
Range Minimum	315.76
Range Maximum	353.04
Range Width	37.28
Mean Std. Error	0.08

**Percentiles:**

<u>Percentile</u>	<u>mg/kg</u>
0%	315.76
10%	326.65
20%	329.10
30%	331.06
40%	332.56
50%	334.11
60%	335.68
70%	337.29
80%	339.22
90%	341.72
100%	353.04

Forecast: PRG25 All Plants**(PlantTRVMC.xls)DATA - Cell: I6****Summary:**

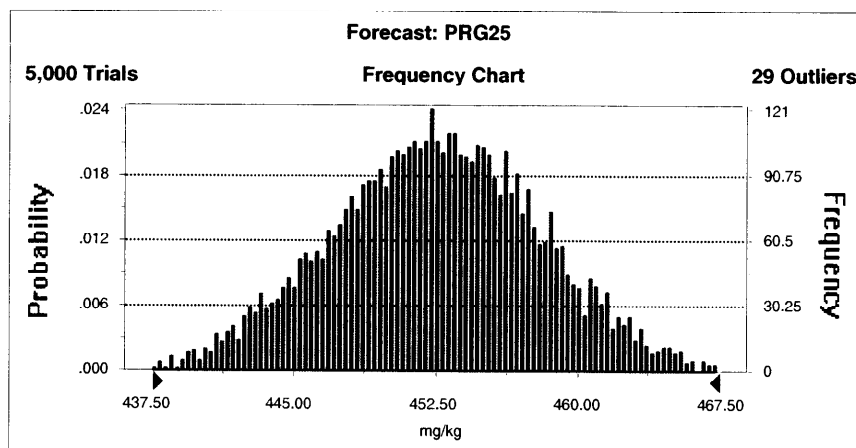
Display Range is from 437.50 to 467.50 mg/kg

Entire Range is from 434.50 to 469.36 mg/kg

After 5,000 Trials, the Std. Error of the Mean is 0.08

Statistics:

	<u>Value</u>
Trials	5000
Mean	452.57
Median	452.63
Mode	---
Standard Deviation	5.52
Variance	30.42
Skewness	-0.04
Kurtosis	2.84
Coeff. of Variability	0.01
Range Minimum	434.50
Range Maximum	469.36
Range Width	34.86
Mean Std. Error	0.08

**Percentiles:**

<u>Percentile</u>	<u>mg/kg</u>
0%	434.50
10%	445.38
20%	447.89
30%	449.70
40%	451.22
50%	452.63
60%	454.04
70%	455.51
80%	457.24
90%	459.56
100%	469.36

Assumptions

Assumption: Little Bluestem

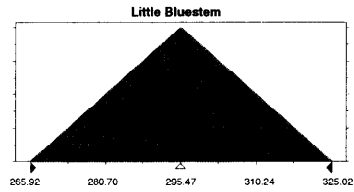
(PlantTRVMC.xls)LBS - Cell: B2

Triangular distribution with parameters:

Minimum	265.92
Likeliest	295.47
Maximum	325.02

Selected range is from 265.92 to 325.02

Mean value in simulation was 295.46



Assumption: Little Bluestem

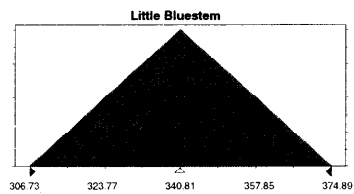
(PlantTRVMC.xls)LBS - Cell: B3

Triangular distribution with parameters:

Minimum	306.73
Likeliest	340.81
Maximum	374.89

Selected range is from 306.73 to 374.89

Mean value in simulation was 340.69



Assumption: Little bluestem

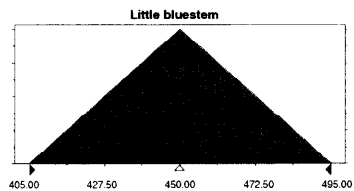
(PlantTRVMC.xls)LBS - Cell: B6

Triangular distribution with parameters:

Minimum	405.00
Likeliest	450.00
Maximum	495.00

Selected range is from 405.00 to 495.00

Mean value in simulation was 450.05



Assumption: Little Bluestem

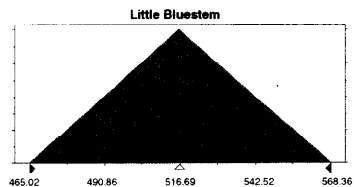
(PlantTRVMC.xls)LBS - Cell: B7

Triangular distribution with parameters:

Minimum	465.02
Likeliest	516.69
Maximum	568.36

Selected range is from 465.02 to 568.36

Mean value in simulation was 516.73



Assumption: red oak

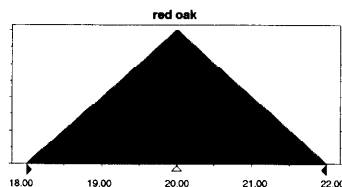
Triangular distribution with parameters:

Minimum	18.00
Likeliest	20.00
Maximum	22.00

Selected range is from 18.00 to 22.00

Mean value in simulation was 19.99

(PlantTRVMC.xls)DATA - Cell: B4



Assumption: autumn olive

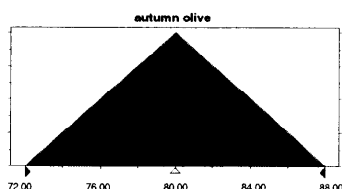
Triangular distribution with parameters:

Minimum	72.00
Likeliest	80.00
Maximum	88.00

Selected range is from 72.00 to 88.00

Mean value in simulation was 80.00

(PlantTRVMC.xls)DATA - Cell: B8



Assumption: Oat

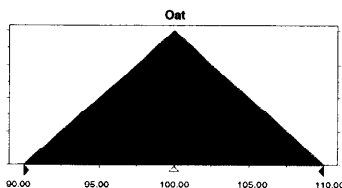
Triangular distribution with parameters:

Minimum	90.00
Likeliest	100.00
Maximum	110.00

Selected range is from 90.00 to 110.00

Mean value in simulation was 99.98

(PlantTRVMC.xls)DATA - Cell: B10



Assumption: radish

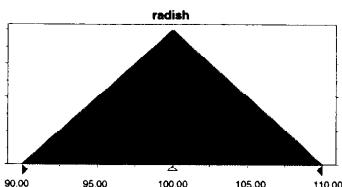
Triangular distribution with parameters:

Minimum	90.00
Likeliest	100.00
Maximum	110.00

Selected range is from 90.00 to 110.00

Mean value in simulation was 99.92

(PlantTRVMC.xls)DATA - Cell: B11



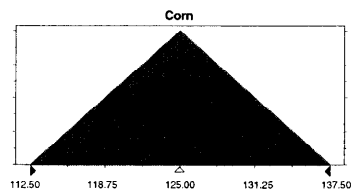
Assumption: Corn

Triangular distribution with parameters:

Minimum	112.50
Likeliest	125.00
Maximum	137.50

Selected range is from 112.50 to 137.50

Mean value in simulation was 124.94

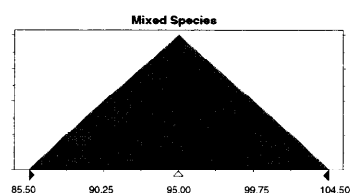
(PlantTRVMC.xls)DATA - Cell: B12**Assumption: Mixed Species**

Triangular distribution with parameters:

Minimum	85.50
Likeliest	95.00
Maximum	104.50

Selected range is from 85.50 to 104.50

Mean value in simulation was 95.03

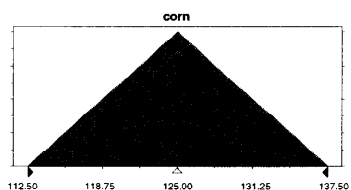
(PlantTRVMC.xls)DATA - Cell: B9**Assumption: corn**

Triangular distribution with parameters:

Minimum	112.50
Likeliest	125.00
Maximum	137.50

Selected range is from 112.50 to 137.50

Mean value in simulation was 124.96

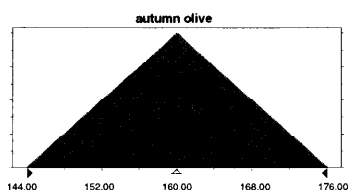
(PlantTRVMC.xls)DATA - Cell: B13**Assumption: autumn olive**

Triangular distribution with parameters:

Minimum	144.00
Likeliest	160.00
Maximum	176.00

Selected range is from 144.00 to 176.00

Mean value in simulation was 159.92

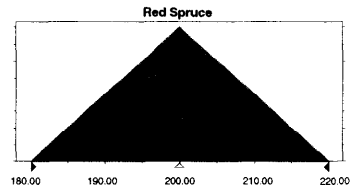
(PlantTRVMC.xls)DATA - Cell: B14

Assumption: Red Spruce

Triangular distribution with parameters:

Minimum	180.00
Likeliest	200.00
Maximum	220.00

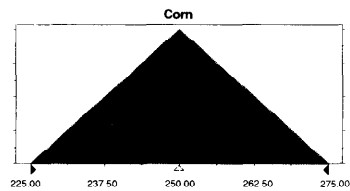
Selected range is from 180.00 to 220.00
Mean value in simulation was 199.91

(PlantTRVMC.xls)DATA - Cell: B15**Assumption: Corn**

Triangular distribution with parameters:

Minimum	225.00
Likeliest	250.00
Maximum	275.00

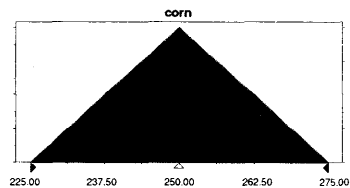
Selected range is from 225.00 to 275.00
Mean value in simulation was 250.16

(PlantTRVMC.xls)DATA - Cell: B16**Assumption: corn**

Triangular distribution with parameters:

Minimum	225.00
Likeliest	250.00
Maximum	275.00

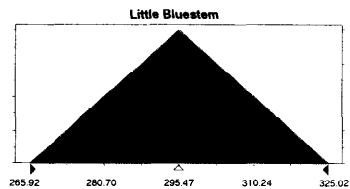
Selected range is from 225.00 to 275.00
Mean value in simulation was 249.99

(PlantTRVMC.xls)DATA - Cell: B18**Assumption: Little Bluestem**

Triangular distribution with parameters:

Minimum	265.92
Likeliest	295.47
Maximum	325.02

Selected range is from 265.92 to 325.02
Mean value in simulation was 295.47

(PlantTRVMC.xls)DATA - Cell: B19

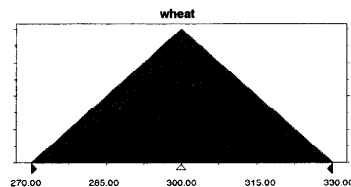
Assumption: wheat

Triangular distribution with parameters:

Minimum	270.00
Likeliest	300.00
Maximum	330.00

Selected range is from 270.00 to 330.00
Mean value in simulation was 300.12

(PlantTRVMC.xls)DATA - Cell: B20



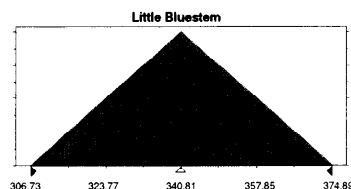
Assumption: Little Bluestem

Triangular distribution with parameters:

Minimum	306.73
Likeliest	340.81
Maximum	374.89

Selected range is from 306.73 to 374.89
Mean value in simulation was 340.52

(PlantTRVMC.xls)DATA - Cell: B21



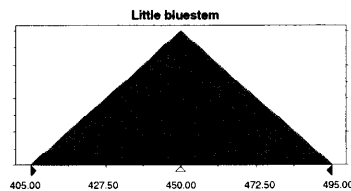
Assumption: Little bluestem

Triangular distribution with parameters:

Minimum	405.00
Likeliest	450.00
Maximum	495.00

Selected range is from 405.00 to 495.00
Mean value in simulation was 449.86

(PlantTRVMC.xls)DATA - Cell: B24



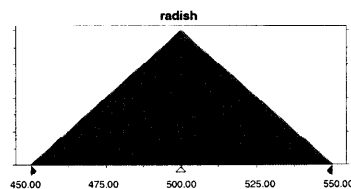
Assumption: radish

Triangular distribution with parameters:

Minimum	450.00
Likeliest	500.00
Maximum	550.00

Selected range is from 450.00 to 550.00
Mean value in simulation was 499.84

(PlantTRVMC.xls)DATA - Cell: B27



Assumption: Wheat

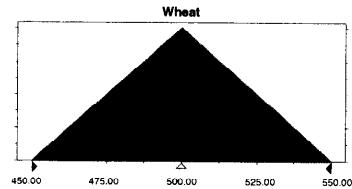
Triangular distribution with parameters:

Minimum	450.00
Likeliest	500.00
Maximum	550.00

Selected range is from 450.00 to 550.00

Mean value in simulation was 499.82

(PlantTRVMC.xls)DATA - Cell: B28

**Assumption: Little Bluestem**

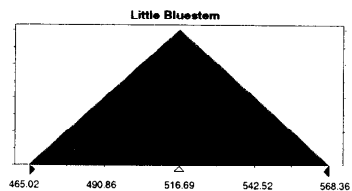
Triangular distribution with parameters:

Minimum	465.02
Likeliest	516.69
Maximum	568.36

Selected range is from 465.02 to 568.36

Mean value in simulation was 516.85

(PlantTRVMC.xls)DATA - Cell: B29

**Assumption: fescue**

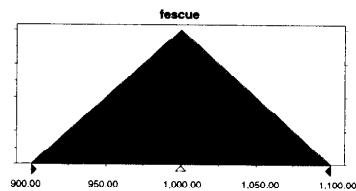
Triangular distribution with parameters:

Minimum	900.00
Likeliest	1,000.00
Maximum	1,100.00

Selected range is from 900.00 to 1,100.00

Mean value in simulation was 1,000.55

(PlantTRVMC.xls)DATA - Cell: B32

**Assumption: lettuce**

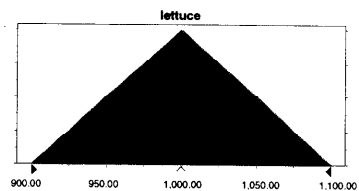
Triangular distribution with parameters:

Minimum	900.00
Likeliest	1,000.00
Maximum	1,100.00

Selected range is from 900.00 to 1,100.00

Mean value in simulation was 999.49

(PlantTRVMC.xls)DATA - Cell: B34



Assumption: rye

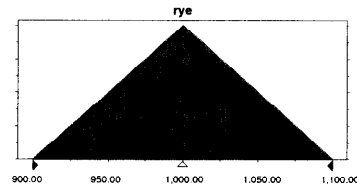
Triangular distribution with parameters:

Minimum	900.00
Likeliest	1,000.00
Maximum	1,100.00

Selected range is from 900.00 to 1,100.00

Mean value in simulation was 1,000.37

(PlantTRVMC.xls)DATA - Cell: B36



Assumption: wheat

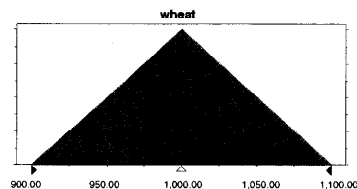
Triangular distribution with parameters:

Minimum	900.00
Likeliest	1,000.00
Maximum	1,100.00

Selected range is from 900.00 to 1,100.00

Mean value in simulation was 1,001.02

(PlantTRVMC.xls)DATA - Cell: B38



Assumption: Red Spruce

Triangular distribution with parameters:

Minimum	1,800.00
Likeliest	2,000.00
Maximum	2,200.00

Selected range is from 1,800.00 to 2,200.00

Mean value in simulation was 2,000.46

(PlantTRVMC.xls)DATA - Cell: B39

